

Remarks

New claims 70-79 are presented for the Examiner's review and consideration. Claims 1-69 have been cancelled. Applicant believes the claim amendment and the accompanying remarks herein serve to clarify the present invention and are independent of patentability. No new matter has been added.

New Claims

No new matter has been added by the addition of new claims 70-79. These new claims are fully supported in the specification as originally filed and in the cancelled claims.

The subject matter of new claim 70 is supported by cancelled claim 64 and in the specification as originally filed. *See*, paragraphs [0045] and [0046] at page 9; paragraph [0063] at page 12; paragraphs [0083]-[0094] at pages 15-18; and Figure 7.

The subject matter of new claims 71-79 is supported by cancelled claims 69 and 54-61.

35 U.S.C. §102 Claim Rejection

Claims 54, 56-59, 64, and 68 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by international publication WO 91/12779 to Wolff et al. (hereinafter "Wolff"). Claims 54, 56-59, 64, and 68 have been cancelled. New claims 72, 74-77, and 70 correspond to the cancelled claims. For reasons set forth below, Applicant respectfully submits that the rejected claims are not taught or suggested by Wolff.

Wolff

Wolff discloses a prosthesis for insertion into a lumen to limit restenosis of the lumen. The prosthesis carries restenosis-limiting drugs which elute after the device is positioned in the lumen. *See*, abstract and Figure 1. Wolff teaches that the proliferation of smooth muscle cells in the vessel must be stopped in order to prevent restenosis, but does not teach evaluation of patients with this or any other vascular condition. *See*, specification at page 7, lines 19-20. The

preferred embodiment for the prosthesis described by Wolff is the stent **(10)** configuration consisting of a single filar, monofilament braided mesh design as shown in Figure 1. This stent consists of sixteen filaments **(12)**, eight of which are wound in one helical direction, and the remaining eight are wound in the opposite direction. *See*, specification at page 10, lines 22-27. A filament **(22)** can be formed with a metal core **(16)** and a coating **(14)** as shown in Figure 13. This coating can contain a drug and is required to overlie at least a portion of the metal core. *See*, specification at page 3, lines 4-6. Wolff does not disclose the use of sheaths or caps for enclosing the core of the filaments.

Claimed Invention

The claimed invention is a method for treating or preventing a vascular disease with a therapeutic implant wherein the implant is selected based upon an evaluation of the patient's current vascular state, including examining the morphology of the smooth muscle cells of the vessel walls.

The concept of restenosis or hyperproliferative vascular disease is now more clearly understood than it was a few years ago. At first, restenosis was thought simply to be a response of the vascular smooth muscle cells upon injury. There is now information available to demonstrate that restenosis is different in every individual depending on the underlying conditions that constitute the vascular disease. Thus, drug combinations can be selected to treat or prevent a specific disease process of the vascular disease. *See*, specification paragraphs **[0045]** and **[0046]** at page 9.

The distinctive feature of restenosis is diverse histopathology. Histologically, restenosis is characterized by a diffuse, concentric, fibrous expansion of the arterial intima, including hyperplasia of the smooth muscle cells of the vessel wall and constrictive vascular remodeling, that results in narrowing and eventually total occlusion of the vessel lumen. *See*, specification paragraph **[0045]** at page 9. During restenosis the shape of the smooth muscle cells changes from the normal rhomboid into a spindle shape. In Figure 7, the instant inventors show that combinatorial therapy is more effective in preventing proliferation of both rhomboid and

spindle-shaped smooth muscle cells than monotherapy. One can see from the graph (Figure 7) that proliferation is less with sirolimus (rapamycin) and cyclosporine (combinatorial therapy) than with sirolimus alone (monotherapy). Additionally, both uncoated and polymer-coated implants show greater amounts of proliferation when compared to combinatorial therapy. Thus, the therapeutic agent or agents to be delivered can be selected by examining the underlying morphology of the disease. *See*, paragraph [0063] at page 12; paragraphs [0083] and [0084] at page 15; and Figure 7.

Furthermore, restenosis is no longer identified as simply a hyperproliferative disease, but more specifically as a fibroproliferative disease with a defined pathologic cascade of events and interactions. Key events in this cascade can be selected as therapeutic targets. *See*, paragraphs [0083] and [0084] at page 15.

Thus, in the claimed method a patient is initially evaluated to determine what specific disease process is affecting the patient. Then, after the evaluation, the therapeutic agents to be delivered via the stent can be selected to treat or prevent the specific disease process that is creating the problem. *See*, paragraphs [0084] and [0085] at pages 15-16.

The implant used in the claimed method is a stent formed by a plurality of interlaced stent preforms. Each preform comprises an elongated metallic core, including a contact surface and first and second ends, an outer sheath disposed about the contact surface of the metallic core, and caps disposed on the ends of the outer sheath. The sheath and caps surround the core to prevent the core from directly contacting the wall of a body lumen. *See*, paragraphs [0132] and [0134] at pages 26-27 and Figure 8.

Wolff does not teach the steps of evaluating the current vascular state of a patient or selecting therapeutic agents based upon the results of the patient evaluation. Wolff teaches only that the proliferation of smooth muscle cells must be stopped to prevent restenosis, but teaches nothing regarding their pathologic morphology. Furthermore, Wolff does not teach a stent preform having a metallic core completely encapsulated by an outer sheath with capped ends. The stent preform of Wolff requires only that a polymeric drug-carrying coating overlies at least a portion of the metallic core. Wolff neither mentions nor illustrates a stent preform with capped

or closed ends.

Therefore, Wolff does not teach all of the elements of the invention as currently claimed, and thus, Wolff does not anticipate the invention. Accordingly, Applicant submits that claim 70 is patentable over Wolff. Claims 71-79 depend from claim 70, and include all of the elements of their base claim. Accordingly, Applicant submits that these dependent claims are patentable over Wolff at least for the same reasons.

In light of the foregoing arguments, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 72, 74-77, and 70 (cancelled claims 54, 56-59, 64, and 68) under 35 U.S.C. §102(b).

35 U.S.C. §103 Claim Rejections

Claim 55 (new claim 73) was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Wolff in view of U.S. Patent No. 6,491,662 to Liprie et al. (hereinafter "Liprie"). Claims 60 and 61 (new claims 78 and 79) were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Wolff in view of U.S. Patent Application Publication No. 2002/77693 to Barclay et al. (hereinafter "Barclay"). Claims 67 and 69 (new claim 71) were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Wolff in view of U.S. Patent Application Publication No. 2005/261283 to Sukhatme (hereinafter "Sukhatme").

As previously discussed, claim 70 is submitted to be patentable over Wolff. The inclusion of the teachings of Liprie, Barclay or Sukhatme fails to overcome the deficiencies of Wolff. Claims 71, 73, 78, and 79 depend from claim 70, and include all of the elements of their base claim. Accordingly, Applicant submits that these dependent claims are patentable at least for the same reasons.

In light of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 71, 73, 78, and 79 (cancelled claims 55, 60, 61, 67, and 69) under 35 U.S.C. §103(a).

Applicant(s): S. Jayaraman
Application No.: 10/696,174
Examiner: B. Pellegrino

Conclusion

In light of the foregoing remarks, this application is now in condition for allowance and early passage of this case to issue is respectfully requested. If any questions remain regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

A fee of \$525 for a three month extension of time is believed to be due and is being paid via credit card. However, please charge any other required fee (or credit overpayments) to the Deposit Account of the undersigned, Account No. 503410 (Docket No. 795-A03-004).

Respectfully submitted,
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